UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

November 16, 1998

Mr. Bruce Halstead
US Fish and Wildlife Service
1125 16th Street, Room 209
Arcata, CA. 95521-5582

Dear Mr. Halstead:

The Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) and Habitat Conservation Plan/Sustained Yield Plan (HCP/SYP) for the project entitled **Headwaters Forest Acquisition and the PALCO Sustained Yield Plan and Habitat Conservation Plan, California**. Our review is pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), Section 309 of the Clean Air Act, and the Clean Water Act (CWA). Our review and comments are also provided in the spirit of our role as a cooperating agency providing technical assistance and advice in areas within our jurisdiction.

The DEIS evaluates Federal and State actions associated with the September 28, 1996 Headwaters Agreement (Agreement) and subsequent agreements which include:
(1) Acquisition by the United States and the State of California from Pacific Lumber Company (PALCO) of the approximately 4,500-acre Headwaters Forest, which includes 2,700 acres of old-growth redwood trees, and the approximately 1,125-acre Elk Head Springs Forest, which includes about 425 acres of old-growth redwood trees;
(2) Funding by the United States and the State of California of the purchase of approximately 9,600 acres of Elk River Timber Company property, about 7,755 acres of which will be transferred to PALCO as part of the consideration to PALCO for the Headwaters and Elk Head Springs Forests, and 1,845 acres of which will be transferred to the United States and the State of California and preserved as a buffer for the Headwaters Forest. The combined area of the acquired Headwaters and Elk Head Springs Forests, plus the Elk River property to be transferred to the United States and the State of California, is approximately 7,500 acres;
(3) Payment by the United States and the State of California of up to $380 million to PALCO and the Elk River Timber Company as payment for the Headwaters Forest, Elk Head Springs Forest and the Elk River Property;
(4) Issuance by US Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) of federal incidental take permits covering take of threatened and endangered species on PALCO's timberlands based on a habitat conservation plan

(HCP) that meets the requirements of the federal Endangered Species Act (ESA) and other applicable laws and regulations;
(5) Approval by California Department of Forestry and Fire Protection (CDF) of PALCO's Sustained Yield Plan (SYP), including measures and plans addressing state-listed and federally listed species;
(6) Issuance by California Department of Fish and Game (CDFG) of a state incidental take permit that meets the requirements of the California ESA and other applicable laws and regulations; and
(7) Execution by CDFG of a state streambed alteration agreement pursuant to Fish and Game Code Section 1600 to 1607.

Federal appropriations have been approved for purchase of the Headwaters Reserve. State appropriations have been approved contingent upon inclusion in the HCP/SYP of more environmentally protective forest management practices such as wider riparian buffers to protect threatened and endangered fisheries. The DEIS evaluates four alternatives: Alternative 1- No Action, Alternative 2 - PALCO's proposed HCP/SYP (proposed action), Alternative 3 - Property-wide Selective Harvest, and Alternative 4 - 63,000 acre No-harvest Public Reserve.

The State and Federal assumptions for assessing environmental impacts to aquatic resources under the No Action/No Project alternative differ due to differences in analysis approach required by the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). Pursuant to CEQA and State assumptions, the likely No Action/No Project would consist of PALCO operating in a manner similar to current Timber Harvest Plan practices and subject to the existing regulatory authority of the State Forest Practice Rules and California Department of Forestry and Fire Protection. Federal assumptions include the belief that management measures augmenting the existing Forest Practice Rules would need to be applied to avoid take of listed species. Thus, for purposes of analysis under NEPA and the evaluation of potential environmental impacts, the No Action baseline is based upon Federal assumptions and includes "additional measures" to avoid take of listed species in the form of wide riparian management zones (DEIS, pgs. 2-24 to 2-25).

The Lead Federal Agency is the US Fish and Wildlife Service (FWS) and Lead State Agency the California Department of Forestry and Fire Protection (CDF). Cooperating Agencies are the National Marine Fisheries Service (NMFS), Bureau of Land Management (BLM), Environmental Protection Agency (EPA), California State Department of Fish and Game (CDFG), and California Regional Water Quality Control Board - North Coast Region (NRWQCB).

EPA supports the Headwaters Forest Acquisition, the habitat conservation planning process, and sustainable harvest of timber products. We thank the lead and cooperating Federal and State agencies for their collaborative work with EPA. We recognize and appreciate the extensive work that has been undertaken by FWS, NMFS, and others, over the last two years in developing the HCP/SYP and EIS. This

work has resulted in a proposed HCP/SYP which will result in definite improvements over existing private forest management and species protection efforts under the California Forest Practice Rules.

Land within the Headwaters Project area includes portions of six watersheds which are either listed or proposed for listing as "water quality-limited" in accordance with Section 303(d) of the Clean Water Act. These watersheds have been listed due to the impact of sedimentation and elevated stream temperatures on beneficial uses such as threatened and endangered fisheries. CDF has also acknowledged that five streams within the HCP/SYP Plan Area have significant negative cumulative sediment impacts and documented declines in fish populations. For each of the waterbodies listed as "water quality-limited" pursuant to Section 303(d) of the Clean Water Act, the North Coast Regional Water Quality Control Board (or in some specific cases EPA) will develop Total Maximum Daily Loads (TMDLs). TMDLs are quantitative assessments of the sources of pollutants and allocations of those pollutants which are established in order to reduce pollution to levels that achieve water quality standards.

Therefore, EPA has a strong interest in ensuring forest management practices as proposed in the HCP/SYP to meet Endangered Species Act and California Forest Practices Act requirements are consistent with future TMDL requirements. In addition, it has always been our goal and understanding that it would be in the best interest of the government to discuss requirements of the Endangered Species Act and Clean Water Act simultaneously. EPA was not involved in final negotiations of the HCP/SYP or September 28, 1996 Headwaters Agreement but we have been working closely with PALCO, the state, and federal agencies to help develop and implement the environmental compliance portion of the HCP/SYP.

Both EPA and the North Coast Regional Water Quality Control Board have participated in the interagency aquatics team, and EPA agrees with the products created by the team, especially the "Properly Functioning Conditions" Matrix and the Fourth Version Draft Aquatic Mitigation Strategy. PALCO owns a significant portion of land in the Yager Creek and Van Duzen River watersheds where TMDLs are scheduled for completion by EPA in 1999. These TMDLs provide the first opportunity to evaluate and integrate the aquatic conservation measures of the HCP in conjunction with the activities and conditions in the entire Yager Creek and Van Duzen watersheds.

EPA also has a keen interest in the Headwaters Forest Acquisition and HCP/SYP because, as one of the first major HCP/SYPs to address listed fisheries, it could set a major precedent in developing future HCP/SYPs for actions which could collectively result in significant environmental impacts.

Our review has identified key issues which need to be addressed to ensure an environmentally beneficial project. Our key issues focus primarily on improvements needed in the aquatics section of the HCP. The following issues and recommendations are provided to highlight these areas. We will continue to work with the Federal and

State agencies to reduce the significance of potential environmental impacts which are identified herein and in our detailed comments, enclosed.

1) The HCP describes a cumulative watershed effects analysis process, separate from the watershed analysis process, that relies on monitoring in-channel conditions and evaluating landslide frequency between different management regimes. While we support these activities, we do not believe they will adequately assess or prevent cumulative impacts to watersheds in the project area. Due to potential time lags between storm events and delivery mechanisms, instream monitoring would not help prevent cumulative effects. EPA-1

We believe a form of hillslope disturbance indicator, based on existing data and applied at a smaller watershed scale, is necessary to prevent cumulative effects or, additional cumulative effects, from intensive forest management in a watershed. We believe the watershed analysis process is an appropriate avenue to apply a disturbance index in order to ensure integration with other resource modules that will safeguard against cumulative watershed effects. We support the concept of establishing a panel of experts to work collaboratively on a better cumulative watershed effects methodology, the results of which could be incorporated into the HCP. In addition to monitoring instream conditions, PALCO should also monitor the effectiveness of hillslope practices, as an early warning indicator, to prevent mass wasting and surface erosion from delivering sediment to watercourses.

2) The Mass Wasting Strategy was developed to minimize the adverse effects of logging and road construction in unstable areas and on steep slopes until watershed analysis could tailor management practices to these sensitive areas on a watershed basis. The intent is to restrict management on known or suspected unstable features (e.g., inner gorges, headwall swales, etc.) unless a scientifically defensible assessment indicates that management actions will not significantly increase the risk of hillslope failure. Although the strategy is sound in concept, it requires the resolution of procedural issues to ensure adequate protection of the environment. For example, the degree of analytical rigour used to justify management on unstable sites and the process for incorporating biological concerns and cumulative watershed effects into the decision-making process must be clarified. EPA-2

The agencies and PALCO should further develop and define the process for assessing the risk that hillslope management actions will have on watershed conditions. If management on those unstable sites is not based on sound science then management should be deferred until further sediment source assessment can be completed through the watershed analysis or some other mechanism. EPA, in coordination with the North Coast Regional Water Quality Control Board, will participate as a reviewing agency on high priority Timber Harvest Plans where management actions are proposed on unstable sites until watershed analysis evaluations have been made.

3) We acknowledge that the proposed riparian management zone prescriptions provide improvements over existing private forest practice rules. However, we do not believe the presently proposed Class II and Class III watercourse buffer widths, particularly without the improvements provided by State legislation, Assembly Bill 1986, would be able to ensure maintenance of adequate bank stability, large woody debris recruitment, and associated sediment metering functions to Class I watercourses, especially in the context of long-term, cumulative effects. EPA-3

We strongly urge a commitment to and the incorporation of the State legislation Assembly Bill 1986 buffer widths into the HCP provision thereby widening the restricted harvest bands. This provision will be particularly beneficial on Class II slopes >50% in increasing bank stability and guarding against mass wasting until the watershed analysis process determines the most appropriate width and management regime for those riparian zones.

4) Roads, landings and skid trails are major contributors of sedimentation and typically identified as high priority controllable sites under Total Maximum Daily Loads action plans. PALCO lands contain high road densities and a legacy of roads built prior to current standards which pose continual risk of sediment delivery. Although the proposed road storm-proofing program is a major improvement, the HCP does not clearly describe how historically abandoned roads, skid trails, and landings will be assessed and storm-proofed, nor the number of old roads which would be reconstructed. We also note that the HCP proposes over 400 miles of new road construction over the 50 year life of the incidental take permit. EPA-4

The HCP should clarify the process for assessing, controlling and accounting for sediment sources other than those identified on the active road network. In addition, the criteria for wet weather operations need to be further refined and clarified in order to prevent a violation of the water quality standards.

5) Section 3.14 Herbicides lacks detail and sufficient information for EPA to determine the potential environmental impacts from use of herbicides in the project area. While EPA has not yet consulted with NMFS on the recently listed coho salmon and tidewater goby, we have concerns that atrazine and 2,4-D esters could potentially affect individuals of these species, especially if the coho salmon are present in streams within the project area. Although the application rates are not particularly high and mitigation measures are proposed, because of the absence of information on sampling methodology/timing and residues detected, we cannot discount potential concerns for these fish. We recommend the HCP/SYP and FEIS include a more detailed Herbicide Use Plan and a more substantial evaluation of potential impacts from herbicide and other chemical use (e.g. fertilizers). EPA-5

6) The level of environmental protection provided by the plan will depend on how well it is implemented, monitored, and adaptively managed to account for changing conditions over time. A strong commitment to full implementation and compliance with EPA-6

the HCP/SYP is critical given the significant level of harvest which would exceed growth over the first two decades (pg. 3.9-42) and reduce old-growth redwood (uncut and residual) by 53% and old-growth douglas fir (uncut and residual) by 70% over the 50 year life of the HCP and Incidental Take Permit (Table S-4, S-5, pgs. S-17 to S-18; Chapter 3.9). EPA-6 CON.

To help ensure compliance, we recommend the HCP and Implementing Agreement contain clear and enforceable language. Legally enforceable mechanisms to ensure adequate and timely implementation of HCP/SYP requirements, such as, monitoring, adaptive management framework, fail-safe feedback loops into management decisions must be included in the Implementation Agreement. The HCP and Implementation Agreement should describe roles and responsibilities for inspections, consultation, consultation and inspection schedules, monitoring, and enforcement consequences in the event of HCP or permit violations. EPA recommends that the Implementation Agreement more clearly define the remedies for violation of permit conditions. Remedies should be strong enough to deter violations, and the process for taking enforcement actions should be as expeditious as possible. EPA will track implementation of the HCP through our participation on watershed analysis and mass wasting review teams and review of high priority Timber Harvest Plans that may threaten aquatic resources. In addition, EPA will continue to ensure that Clean Water Act programs, such as Total Maximum Daily Loads, will be properly implemented regardless of the status of the HCP. EPA-7

Based upon our review, the above comments, consistent with our EPA Rating System (see attached "Summary of the EPA Rating System"), we have classified this DEIS as category EO-2, Environmental Objections-Insufficient Information. We appreciate the opportunity to comment on the DEIS and look forward to working with you to achieve an environmentally sound project. Please let us know when you would be available to discuss our comments. Please send three copies of the Final EIS and HCP/SYP to this office at the same time they are officially filed with our Washington D.C. Office and released for public review. If you have any questions, please call me at (415) 744-1566, or David Farrel, Chief, Federal Activities Office at (415) 744-1584.

Sincerely,

Deanna Wieman
Deputy Director
Cross Media Division

Enclosures: Detailed comments
EPA Rating System

MI002803

97-259
Filename: Hwdeislt.wpd

cc: Mike Spear, Regional Director, Region 1 USFWS
Wayne White, USFWS, Sacramento Field Office
Dennis Mackey, USFWS, Portland
Ben Harrison, USFWS, Portland
Headwaters Project Director, USDA
David Hays, DOI
Lynne Cox, DOI
Bill Hogarth, Regional Director, NMFS
Jim Lecky, NMFS
Vicki Campbell, NMFS
Craig Wingert, NMFS
Regional Forester, Region 5 USFS
Ed Hasty, BLM
Richard Johnson, BLM
Pat Port, US DOI
Jim Branham, CA Resources Agency
Mark Stopher, CDFG, Redding
Frank Reichmuth, RWQCB, North Coast Region 1
Richard Wilson, Director CDF
Allen S. Robertson, CDF
John Campbell, Pacific Lumber Company
Frank Bacik, Attorney for Pacific Lumber Company
Elk River Timber Company
Tom Stewart, Foster Wheeler

## DETAILED COMMENTS

## COMMENTS ON THE HCP/SYP

### HCP-Aquatics

**1.) Linkages to TMDLs**: PALCO is a major landowner in a number of watersheds for which EPA or North Coast Regional Water Quality Control Board must develop TMDLs, in accordance with Section 303(d) of the Clean Water Act, and within the schedule set forth under the North Coast TMDL consent decree. The schedule for TMDL development and description of EPA authorities are found in Section 1.8.1 of the EIS. Since EPA and the NRWQCB have not yet established TMDLs for any watersheds in which PALCO has ownership, we cannot make a definitive determination at this time on whether the HCP "complies" with TMDLs. However based on our present knowledge of watershed conditions and the actions presented in the HCP, we believe the HCP aquatic strategy contains elements which are procedurally "on track" for eventual consistency with TMDLs, along with certain areas of concern. The framework for the aquatic strategy, including the establishment of interim prescriptions, assessment of watershed conditions, development of watershed-specific prescriptions, monitoring, and adaptive management is a sound approach. However, the success of this complex aquatic strategy will depend in large part on PALCO's commitment to implement all provisions and the regulatory agencies' ability to closely track and monitor compliance with and effectiveness of the aquatic strategy. The primary weakness of the strategy is a lack of process to adequately assess and prevent cumulative watershed effects which may result from intensive forest management in existing, impaired watersheds. The purpose of the following comments is to clarify the relationship between key elements of the HCP relative to the development of TMDLs including target conditions, watershed analysis, road storm-proofing, riparian management zones, monitoring, and adaptive management.

**2.) Target Conditions**: The interagency aquatic team developed a matrix of "properly functioning conditions" (PFC) that described aquatic habitat conditions representative of healthy watersheds, as referenced in Table 7 of the Aquatic Conservation Plan (HCP Vol. IV, Part D). PALCO has committed to monitor several of the key variables to determine the trends toward numeric goals. The numeric goals should also be used in the watershed analysis process to assess existing baseline conditions from which to determine appropriate prescriptions to reach the goals. EPA may utilize some of the sediment-related parameters from the matrix to fulfill the target condition element of the TMDLs. EPA may incorporate parameters and thresholds, other than those listed in the PFC matrix, into the TMDL in the future, through an

EPA-8

adaptive management approach, if identified and justified through the watershed analysis or monitoring process.

EPA-8 con.

**3.) Watershed Analysis**: We are generally supportive of the HCP's watershed analysis (WA) process, patterned after the State of Washington DNR methodology, which contains several assessment modules related to TMDL development including: stream channel conditions, mass wasting, road and surface erosion, and riparian stand conditions. However, we are concerned that cumulative watershed effects are not adequately considered in the WA process, nor through any other mechanism in the HCP, as discussed in Item #4 below. The WA process, if adapted properly to California and implemented as intended, can contribute valuable information for TMDL development and watershed protection in general. For example, we expect the mass wasting and surface erosion modules to quantify the relative contributions of sediment delivery from different sources, including natural and management-related, from which to develop TMDL reduction allocations. The development of watershed-specific prescriptions tailored to the unique physical and biological characteristics of each watershed is a key element of the WA process. The HCP currently does not clearly describe how the watershed-specific prescriptions will be incorporated in THPs and how those plans will be monitored for effectiveness over time.

**Recommendation**: EPA will participate in the Freshwater Creek WA process for the purposes of integrating sediment TMDL elements and ensuring that management prescriptions are protective of water quality and cumulative watershed effects. We recommend that the agencies work closely with PALCO to further define the process by which the WA prescriptions will be implemented and monitored over time. In addition, we believe the WA should incorporate a process to evaluate Cumulative Watershed Effects (CWE) as characterized below.

EPA-9

**4.) Cumulative Watershed Effects (CWE)**: The HCP describes a cumulative watershed effects analysis process, separate from the watershed analysis process, that relies on monitoring in-channel conditions and evaluating landslide frequency between different management regimes. While we are supportive of those activities, we do not feel they will adequately serve to assess or prevent cumulative watershed effects. For example, instream monitoring is useful for determining long-term trends in watershed condition but not as useful for preventing cumulative effects, due to potential time lags between storm events and delivery mechanisms. We are also concerned that extensive, existing data regarding stream and hillslope conditions within PALCO's ownership have not been adequately considered when determining the need to prevent cumulative watershed effects. There are existing watersheds suffering from cumulative effects from which lessons can be learned regarding intensity of management, road densities, and the combined effects of other management actions. PALCO developed

a hillslope disturbance index described in Vol. II, Part E of the HCP, which has the potential to serve as a screening tool for predicting watersheds where cumulative watershed effects may become an issue based on landscape characteristics in combination with management intensity. However, the current form of disturbance index is not effective due to the geographic scale at which it is applied, thresholds used to affect management, recovery periods, and the exclusion of roads in the formula. EPA-10

**Recommendations**: We believe a form of hillslope disturbance indicator, based on existing data and applied at a small enough watershed scale, is needed to prevent cumulative effects in a watershed due to intensive forest management. We believe the watershed analysis process is an appropriate avenue to apply a disturbance index and to ensure integration with other resource modules used to assess cumulative watershed effects on a watershed or subwatershed scale. We support the concept of establishing a panel of experts to work collaboratively on a better cumulative watershed effects methodology, the results of which could be incorporated into the HCP. In addition, the agencies and PALCO should consider recommendations from independent reviewers, such as Dr. Leslie Reid and the University of California panel, regarding methodologies to assess cumulative watershed effects.

5.) **Road Storm-proofing**: Roads, landings and skid trails are major contributors of sedimentation and typically identified as high priority controllable sites under Total Maximum Daily Load action plans. PALCO lands contain high road densities and a legacy of roads built prior to current standards which pose continual risk of sediment delivery. The road storm-proofing program as described in Sections 1.2.1.1., 1.2.1.2. and Volume II Part N is based on a practical approach of identifying and prioritizing preventable sources of sedimentation depending on proximity to watercourses and feasibility of fixing the problems. The HCP does not, however, clearly describe how historically abandoned roads, skid trails and landings will be assessed and storm-proofed, nor the number of old roads which would be reconstructed. Our concern is that the 500 mile per decade storm-proofing standard will only apply to existing or active road network at the exclusion of legacy sites which pose even higher priority hazard for sediment delivery. We also note that the HCP proposes over 400 miles of new road construction over the 50 year life of the incidental take permit. EPA-11

**Recommendation**: The HCP should clarify the process for assessing, controlling and accounting for sediment sources other than those identified on the active road network. We urge immediate development of management guidelines for winter road construction and use, especially for impaired watersheds.

6.) **Wet Weather Operations**: As currently described, PALCO will limit their road use during wet weather only after there is a violation of the state water quality standard for turbidity (i.e., "visible increase in turbidity in a Class I, II or III stream..."). Rather, EPA-12

the operations should cease when there is a visible increase in turbidity in any drainage facility or road surface that drains to a Class I, II or III stream prior to the visible increase of turbidity occurring in those streams. This would prevent a violation of the water quality standard rather than halting operations after a violation. For further interpretation on this issue, refer to the North coast Regional Water Quality Control Board comments on the HCP/SYP. EPA-12 con.

7.) **Hillslope Management - Mass Wasting Strategy**: This process was developed to address the adverse effect of logging and road construction in unstable areas and on steep slopes during the interim period until watershed analysis could tailor management to those areas on a watershed basis. The intent is to restrict management on known or suspected unstable features (e.g., inner gorges, headwall swales, etc.) unless a scientifically defensible assessment indicates that management actions will not significantly increase the risk of hillslope failure. The strategy is sound in concept but requires the resolution of certain procedural issues such as the degree of analytical rigour used to justify management on unstable sites and the process for incorporating biological concerns and cumulative watershed effects into the decision-making process. On the first point, to date, PALCO geologists have used fairly crude assessment techniques to determine whether management actions will have an impact on the identified unstable areas. For example, in a report to the National Marine Fisheries Service, dated August 4, 1998, Dr. Reid of Redwood Sciences Lab determined that PALCO's "zero net discharge" calculation on Sulfur Creek significantly underestimated the quantity of sediment input from 2 THPs. Given the known instability for the areas identified in the mass wasting process, any management actions in those areas require a rigorous analytical justification or else management decisions should be deferred until proper analysis can be completed through the watershed analysis process. Secondly, any determination of hillslope risk must include an evaluation of instream biological and physical conditions. Clearly, the risk of management on a hillslope capable of delivering sediment to a prime spawning reach for coho salmon would constitute a higher risk than a site in a watershed with minimal biological value. Presently, PALCO geologists appear to be making determinations of hillslope risk in the absence of meaningful interaction with biologists and geomorphologists regarding fisheries and channel conditions. EPA-13

**Recommendations**: The agencies and PALCO should further develop and define the process for assessing the risk hillslope management actions will have on watershed conditions. If management on those unstable sites is not based on sound science then management should be deferred until further sediment source assessment can be completed through the WA or some other mechanism. EPA will participate as a reviewing agency on high priority THPs where management actions are

proposed on unstable sites during the interim period between issuance of the incidental take permit and WA evaluations. EPA-13 con.

**8.) Riparian management zones**: We acknowledge that the riparian management zone prescriptions provide, in certain areas, substantial improvements over existing forest practice rules. However, we are concerned with the ability of the Class II and Class III watercourse buffer widths, particularly without the improvements provided by AB1986, to provide bank stability, large woody debris recruitment and associated sediment metering functions to Class I watercourses. Based on results of Pacific Watershed Associates (PWA) sediment source investigation of the lower Eel River (PWA 1997), the Class II watercourse buffer width proposed in the HCP (10 feet) may be inadequate to guard against bank erosion and mass wasting, particularly on slopes >50%. The PWA study identified "streamside" geomorphic features (which represent slopes between 50%-65%) as delivering 17%-28% of total sediment delivery, second only to "inner gorge slopes" (slopes >65%) which constitute 54% -62% of the total. Bank erosion was found to deliver 18% -32% of total sediment delivery out of all erosional features. EPA-14

**Recommendation**: We strongly urge a commitment to and the incorporation of the AB1986 buffer widths into the HCP provision thereby widening the restricted harvest bands, during the interim period. This provision will be particularly beneficial on Class II slopes >50% in increasing bank stability and guarding against mass wasting until the watershed analysis process determines the most appropriate width and management regime for those riparian zones.

**9.) Large Tree Retention**: The primary objective of retaining an additional 10 trees greater than 40 inches diameter at breast height (DBH) per acre on each side of the watercourse is to recruit large woody debris (LWD) into the future. Thus, we believe permanently marking those trees is essential to ensure that the trees grow to a size and age at which they have an optimal chance of falling into the watercourse. If the trees are not permanently marked, as described in the HCP, the chances of meaningful LWD recruitment are greatly reduced. EPA-15

**Recommendation**: Permanently mark 10 trees greater than 40 inches DBH (or largest size class if trees of this size are not available) per acre on each side of the watercourse.

**10.) Monitoring and Adaptive Management**: The HCP contains an aquatics monitoring program describing objectives and methods for monitoring, primarily, instream aquatic parameters. We have two concerns with the proposed monitoring program: 1) As in the cumulative watershed effects discussion above, adaptive management appears to be based solely on the results of the instream trend EPA-16

monitoring. This approach is flawed due to the time lag between management and instream conditions. Rather, PALCO should adopt a process of monitoring the implementation and effectiveness of hillslope practices, in addition to channel conditions, in order to effectively adapt management practices. Such a process is referenced, but not adequately incorporated into the cumulative watershed effects or adaptive management process. 2) The monitoring program should adopt a rigorous Quality Assurance/Quality Control (QA/QC) plan addressing site selection, data acquisition procedures, analytical methods, data management, quality control, data validation and usability, etc. per guidance provided in "EPA Requirements for Quality Assurance Project Pans for Environmental Data Operations" (EPA QWA/R-5, Draft Interim Final, August 1994), and "EPA Guidance for Quality Assurance Project Plans" (EPA (QA/G-5, Final, August 1997).

EPA-16 con.

**Recommendation:** The regulatory agencies should work with PALCO to improve the monitoring program by incorporating a hillslope monitoring process into the adaptive management and cumulative watershed effects elements of the HCP. Specifically, hillslope monitoring should address the degree to which interim hillslope and road management measures are effective in preventing mass wasting and surface erosion delivery to watercourses. In addition, we recommend PALCO develop a QA/QC plan, following the guidelines referenced above, in conjunction with the oversight agencies.

**11.) Yager Creek and Van Duzen River TMDLs**: PALCO owns a significant portion of land in the Yager Creek and Van Duzen River watersheds where TMDLs are scheduled for completion in 1999. These TMDLs provide the first opportunity to evaluate and integrate the aquatic conservation measures of the HCP in conjunction with the activities and conditions in the entire Yager Creek and Van Duzen watersheds. EPA has initiated outreach with landowners, other then PALCO, in Yager Creek and Van Duzen River to begin the TMDL assessment process. A draft of the TMDL should be available for general public review and input by the Summer of 1999. In addition to the TMDL public outreach, we intend to carefully consider all the relevant public input regarding aquatic conservation issues with the HCP.

## General Comments

### 1.) PALCO's Environmental Record

PALCO has a poor record regarding compliance with Forest Practice Rules (FPRs) and protection of water quality thereby putting into question their reliability in complying with the terms and conditions of the HCP. Late in 1997, CDF temporarily suspended PALCO's timber harvesting license due to several violations of FPRs, many of which occurred after a Humboldt County municipal judge had placed PALCO on

EPA-17

probation. Many of the violations involved failure to prevent erosion from roads and harvesting operations which resulted in negative impacts to fish habitat and domestic water supplies. CDF subsequently issued a provisional license that stipulates erosion control measures and more frequent inspections. The NRWQCB has issued two cleanup and abatement orders within the past year, directing PALCO to remediate the effects of sediment discharge to Elk River which, "...adversely affect down stream water supplies and aquatic habitat for fisheries." (NRWQCB 1998). Moreover, local resident groups, particularly in the Elk River, Freshwater Creek and North Fork of the Mattole watersheds have expressed their concerns and, in some cases, filed lawsuits regarding PALCO's compliance with environmental laws. Recently, PALCO's timber harvesting license has been suspended until the end of the year because of repeated violations of the California Forest Practice Rules. PALCO's environmental compliance record raises concerns about their commitment and ability to perform under the complex provisions of the HCP. EPA-17 con.

**Recommendation:** To address the compliance issue, we recommend that the HCP and Implementing Agreement (IA) contain clear and enforceable language. The HCP and IA should describe roles and responsibilities for inspections, monitoring, and enforcement consequences in the event of HCP or permit violations. EPA recommends that the Implementation Agreement more clearly define the remedies for violation of permit conditions. Remedies should be strong enough to deter violations, and the process for taking enforcement actions should be as expeditious as possible. EPA is committed to track implementation of the HCP primarily through participating on watershed analysis teams and reviewing high priority Timber Harvest Plans (THPs) that may threaten aquatic resources. As a participating agency on the interagency mass wasting review team, EPA has the opportunity to influence those THPs which propose activities on steep and/or unstable slopes. In addition, we will continue to ensure that Clean Water Act (CWA) programs, such as Total Maximum Daily Loads (TMDLs), will be properly implemented regardless of the status of the HCP.

**2.)** The draft implementation agreement, paragraph 9.1 (a)(4), appears to allow PALCO to seek monetary damages against the federal or state government for issues related to the agreement. This paragraph should be deleted.

## HCP-Aquatics, Additional specific comments

Volume I: Summary

Part F.1.e.4) Water Quality (p.39): EPA disagrees with PALCO's assertion that "water quality is generally good" within the area of the plan. Besides the Van Duzen, Eel and Mattole Rivers being listed as "water quality limited" in accordance with Section 303(d) of the Clean Water Act, Freshwater Creek and Elk River were added to the list EPA-18

in 1998 due to excessive levels of sedimentation. These listings under the CWA, combined with CDF's acknowledgement that five streams with the Plan Area have significant negative cumulative sediment impacts and documented declines in fish populations, serve as indicators that water quality is generally poor within the Plan Area. The distinction between good and poor water quality is important from the standpoint that current and future levels of management are to some degree regulated based on the status of resource conditions. If PALCO, the agencies and the public all have differing views of baseline resource conditions, we will have a difficult time agreeing on the appropriate level of management and, for example, determining what constitutes exceedence of water quality standards and cumulative watershed effects thresholds.

EPA-18 con.

## COMMENTS ON THE DEIS

### Alternatives

### No Action/No Project Alternative

**1.)** As stated above in our cover letter, the State and Federal assumptions for assessing environmental impacts to aquatic resources under the No Action/No Project alternative differ due to differences in analysis approach required by the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). While we understand the differences between State and Federal assumptions, these differences make the DEIS very confusing. In essence, there are two no action baselines from which environmental impacts can be assessed. Thus, it is difficult for decisionmakers and the public to adequately compare the potential environmental impacts of the various alternatives. This confusion is compounded by the lack of integration of project changes made by AB1986. We recommend the FEIS include a description of the rationale for utilizing the Federal No Action/No Project assumptions as the baseline for environmental consequences. To ensure an accurate and clear evaluation of potential environmental consequences, we urge evaluation of the alternatives against the State assumed No Action/No Project alternative (existing conditions), in addition to, the current evaluation based upon the Federal assumed No Action/No Project (existing conditions plus additional management measures to ensure no take of listed species). Inclusion of both No Action/No Project alternatives, plus AB1986 changes, in all tables comparing alternatives would be very helpful.

EPA-19

**2.)** EPA supports the analysis based upon the Federal No Action/No Project baseline which assumes that management measures augmenting the existing California Forest Practice Rules process are needed to avoid take of listed species.

This position has already been stated in our findings regarding Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA) and California's Nonpoint Source Program. Pursuant to CZARA, we found that existing legal and programmatic forest management tools have not been fully effective in ensuring water quality standards are attained and maintained. California waters are currently experiencing significant impacts from forestry. We indicated that California will need to adopt additional management measures for forestry to address coastal waters that are not attaining or maintaining applicable water quality standards or protecting beneficial uses in accordance with Section 6217 of CZARA.

Thus, we do not support the assumption that most significant effects of individual Timber Harvest Plans can be expected to be mitigated to a less than significant level through implementation of the State assumed No Action alternative (e.g., at pg. 3.9-35). Furthermore, we have significant concerns regarding the potential adverse cumulative impacts of the State No Action/No Project alternative without full assurances that additional management measures will be implemented to ensure attainment and maintenance of water quality standards and avoidance of take of listed species. EPA-20

**Alternative 2 PALCO HCP/SYP (Proposed Action/Proposed Project)**

We urge full integration of AB1986 project modifications into the proposed action and evaluation of environmental consequences in the FEIS. We recognize that this integration was not feasible at the time of publication. However, we believe the full integration is critical in clearly defining the proposed action and potential environmental consequence so that decisionmakers and the public can make an informed decision. At present, it is difficult to accurately compare the action alternatives and their potential impacts given the presence of two No Action/No Project alternatives and the lack of integration of AB1986 project modifications. EPA-21

**Alternative 3 Property-Wide Selective Harvest Alternative**

**1.)** The DEIS evaluation of environmental consequences clearly demonstrates that Alternative 3 Property-Wide Selective Harvest is the most protective of water quality and it beneficial uses (pg. 3.4-48); the only alternative to increase critical interior forest and late successional habitat (pg. S-22); significantly reduces potential adverse impacts to vegetation, structural diversity, fragmentation, and old-growth habitat (pg. 3.9-31); and is the environmentally superior alternative (pg. 2-74). While we recognize the potential adverse social and economic impacts of Alternative 3, we urge the Federal and State lead agencies to consider inclusion of plan components from Alternative 3 (e.g., reduced timber harvest levels and rates in impaired watersheds, EPA-22

third party certification principles) which would reduce the potential adverse impacts of the proposed HCP/SYP. EPA-22 con.

**2.)** The DEIS does not appear to evaluate the potential for extensive road building as a consequence of implementing a property-wide selective harvest approach. We recognize that PALCO lands already have a high density of roads and may not need more roads to accommodate a selective harvest strategy. We recommend the FEIS describe whether a selective harvest approach would trigger many more new or reconstructed roads and whether these additional road miles, if any, would minimize or adversely affect the benefits achieved through the aquatic management strategy (e.g., road storm proofing program, mass wasting strategy). EPA-23

**Debt-for-Nature Alternative**

We note that the DEIS describes a "debt for nature swap" and states that this alternative is not considered feasible at this time (pg. 2-7). While a "debt for nature" acquisition alternative may not be feasible at this time, we urge the lead Federal and State agencies to remain flexible and open to possible use of this tool in the future for payment of either all or a portion of the proposed Headwaters Forest Reserve, MMCAs, or other late-successional redwood and Douglas fir habitat. EPA-24

**Fish and Wildlife**

**1.)** The DEIS states that the cumulative impact of the proposed harvest of high-quality redwood habitat is less than significant since only 3.2% of the remaining uncut old growth redwood and 23% of the remaining uncut and residual redwood in southern Humboldt County (pg. S-18) would be removed. The FEIS should describe the ecological significance of the proposed harvest areas and their relative importance to local and regional species viability. We note that small areas of high-quality habitat can be critical if they provide nesting, foraging, rearing or mobility functions (i.e., corridors, connections to other habitat) essential for overall population survival. EPA-25

**2.)** Mitigation for the northern spotted owl under the proposed HCP would consist of implementing PALCO's Northern Spotted Owl Conservation Plan. This plan includes conducting yearly census surveys and changes in management after owl population estimates fall below 75% of the baseline population for three consecutive years. If this population estimate falls below 67% of baseline population for three consecutive years, PALCO would implement a no-take management strategy (pg. 2-27). We remain very concerned with the continued viability of northern spotted owl populations in this Project area, especially given the lag time between detected population decreases and EPA-26

changes in management, plus the ability to harvest nesting habitat after the limited operating period or if nesting is no longer detected (HCP). We urge consideration of additional measures which will assure species viability and their ability to recover from potential population decreases. EPA-26 con.

**3.)** We understand that the HCP is a mitigation plan designed to reduce potential effects to species which may result from the approval of an incidental take permit for those species. However, it is not clear how the HCP is determined to be sufficient mitigation for the incidental take of these species. We recommend the FEIS include additional support and information of how HCP's are considered sufficient to protect species viability. EPA-27

**4.)** The HCP proposes a significant level of timber harvest in an ecosystem which is already considered highly fragmented (pg. 3.10-27). Under Alternative 2, the proposed HCP, most of the unprotected old-growth and stands with residual old-growth tress will be harvested with late seral forest habitat decreased by about one-third. The remaining old growth stands would largely be isolated from other old-growth areas by the early and mid-seral stands (pg. 3.9-30). Much of this harvesting will take place during the first two decades which would harvest at a level that exceeds growth (pg. 3.9-42). Given this level of harvest and the already fragmented condition of the landscape, it is unclear how the HCP will adequately provide for wildlife corridors and the movement of species between core quality habitat. The habitat and ecosystem value of the Headwaters Reserve and MMCAs would be greatly diminished if they become isolated pockets of habitat. The FEIS needs to provide additional scientific data to support the statements that the riparian management zones and remaining residual old-growth would be sufficient to provide adequate corridors and connectors between the core wildlife habitat zones. EPA-28

## Water Quality

**1.)** The DEIS states that grazing could have significant affect on fecal coliform in localized areas under alternatives 2,3, and 4. Watershed analysis would specifically address grazing issues where applicable (pg. 3.4-52). It is unclear whether interim protective measures would be implement prior to watershed analysis. Given the potential for significant localized effects, we urge implementation of guidance and protective management measures during the interim period (5 years) prior to watershed analysis. EPA-29

## Cumulative Impacts

**1.)** It is not clear whether the cumulative impact evaluations considered the potential cumulative impacts of other non-PALCO actions (e.g., regulatory actions, Total Maximum Daily Load action plan, Coastal Zone Act Reauthorization Amendments requirements, future development, and habitat restoration plans). The FEIS should include this evaluation or, if already present, provide a clear reference to the location of this information in the DEIS. EPA-30

**2.)** Adverse cumulative impacts to wetlands and riparian lands are considered substantially reduced in the mid to long term due to the more protective management proposed by the action alternatives (pgs. 3.7-87 to 3.7-90). Thus, the DEIS claims greater benefits if PALCO owns a larger proportion of the watershed. Given the already impaired condition and extensive logging within some of the watersheds in PALCO's ownership, it is unclear whether the above assertion of a positive cumulative impact trend is fully valid. It is possible that continued logging in impaired watersheds, even if under more protective prescriptions, could result in a continued decline in watershed health. The FEIS should provide information and scientific data to support the belief that cumulative impacts to wetlands and riparian lands will be positive across PALCO's ownership. EPA-31

**3.)** We are gravely concerned with the precedent set by allowing PALCO to harvest most of the old-growth and residual old-growth outside the Headwaters Reserve and MMCAs (pg. 3.9-30) and in a manner which would harvest at a level that exceeds growth for the first two decades (pg. 3.9-42). If similar timber production strategies become common in the north coast, we believe future actions could collectively result in significant environmental impacts. Furthermore, it is unclear what type of enforcement action would be taken if significant environmental impacts occur, other then a recalculation of the long-term sustainable yield values (pg. 3.9-48). EPA-32

We are uncomfortable with the assumption that intensively managed restocked stands would provide a net gain in growth rates over 50 years. First, there is no historical evidence that such a strategy has helped to maintain or enhance forest ecosystems, nor would a net gain in growth from intensely managed plantations ensure maintenance of ecosystem values or timber production carrying capacity of the Project area. For instance, if significant erosion takes place with a substantial loss of top soil, the harvested area may no longer be able to produce timber at previous, historic levels. The FEIS should provide scientifically valid data to support the assumption that the level of proposed timber harvest and intensive forest management will ensure a net benefit in timber production and ecosystem values. EPA-33

## Monitoring and Mitigation

**1.)** The DEIS lists mitigation measures recommended by Agencies for improvement of HCP monitoring and mitigation (e.g., pg. 2-78). We urge full implementation of these recommended monitoring and mitigation measures. EPA-34

**2.)** In the absence of mitigative measures, the proposed action could have significant adverse effects on one or more threatened, endangered, or rare plant species (pg. 3.9-34). We urge a firm commitment to and implementation of mitigation measures which will avoid significant adverse impacts to sensitive flora (3.9-34). EPA-35

## Herbicides

### General Comments

**1.)** Section 3.14 Herbicides does not appear to include or make reference to available Registration Standards or Reregistration Eligibility Decision (RED) documents for the pesticides discussed and proposed for use. The Standards and REDs contain the results of EPA's regulatory reviews of these pesticides. The discussions and conclusions in the DEIS on potential exposure, environmental effects, and toxicity are not sufficient without consideration and reference to the information contained in these documents. EPA-36

**2.)** Summary - 5. Environmental Effects - Comparison of Alternatives, Herbicides (S-25). The Summary makes a number of statements without providing support, defining regulatory levels or ranges, or providing sufficient information regarding potential impacts. For example, the summary states that "Alternatives 1, 2, 2a, and 4 would not exceed regulatory levels, cause adverse effects on human health or drinking water quality, or have long-term persistence or bioaccumulation effects" without supporting information or a definition of the regulatory levels or range of effects. We recommend referencing the specific location(s) in the EIS or HCP/SYP where the supporting detail and rational is contained. EPA-37

**3.)** We note that Alternative 3, Property-wide Selective Harvest, has the least environmental effects from pesticides of the four action alternatives considered. In addition, the widespread use of broad spectrum herbicides could markedly affect biodiversity, which could include a significant loss of prey in the regeneration areas for threatened and endangered predators (e.g., northern spotted owl). The proposed clearcutting and herbicide use following such clearcutting could have significant impacts on sensitive, threatened, and endangered flora. EPA-38

**4.)** The DEIS does not appear to evaluate in Section 3.14 Herbicides the potential or anticipated level of "take" of listed species from pesticides. We recommend this evaluation be included in the FEIS. If such an evaluation has been included in other sections of the DEIS, we recommend referencing this evaluation in Section 3.14 Herbicides. EPA-39

**5.)** Effects of pesticide use can differ between two end use products with the same active ingredient. In some cases, the DEIS discussions on effects deal with only the active ingredient (i.e., glyphosate) and not the inerts or carriers used in conjunction with the products (diesel fuel). EPA-40

**6.)** Given the current status of knowledge on selectivity of the herbicides proposed for use, the Office of Pesticide Programs, HQ EPA, would have concern for any exposed plants listed as threatened or endangered.

**7.)** The HCP Incidental take coverage from pesticides does not appear to be discussed. Anticipated take and the conditions under which it is likely to occur is not identified in the DEIS.

**8.)** EPA **has** consulted on herbicides under ESA Sec. 7 with the USFWS.

**9.)** EPA's Reregistration Eligibility Decisions are available for glyphosate, hexazinone, and triclopyr at http://www.epa.gov/REDs/ EPA-41

**Section 3.14 Herbicides Comments**

**1.)** Section 3.14.1.1 Potential for Environmental Exposure. The discussion does not appear to include the impacts to surface water quality resulting from the use of herbicides. These are likely to be more immediate and of greater magnitude than impacts to groundwater. Recent US Geological Survey (USGS) studies, as well as individual state and individual studies, have documented that the pesticides proposed for use are often found in surface water in areas where they are used. The potential impacts to surface water should be thoroughly discussed and evaluated since it is likely to be one of the most affected water resources. EPA-42

**2.)** Section 3.14.1.1 Potential for Environmental Exposure. The USGS has detected atrazine in streams in about 78% of over 5000 National Water Quality Assessment (NAWQA) samples, and 2,4-D in about 12% and Triclopyr in 1% of over 3000 NAWQA samples. Other forestry herbicides, such as glyphosate, hexazinone, sulfometruon methyl, and imazapyr were not analysed for in the NAWQA program samples and so

there is less information concerning their frequency of detections in streams. The fact that many of the herbicides cited in the document are found in streams in areas where they are used should be noted in the EIS and incorporated into the evaluations and alternative selections. EPA-43 con.

**3.)** Section 3.14.1.2; "glyphosate". This introductory section on glyphosate points out that Roundup has aquatic toxicity based on the inclusion of a surfactant that is not in Rodeo. However, the rest of this chapter deals only with "glyphosate" and not with the products that may contain more than glyphosate. The difference is relevant when considering aquatic biota. EPA-44

**4.)** Section 3.14.2. The second half of the statement "Atrazine is applied to the soil or to run off onto the soil" is unclear and should be expanded upon in the FEIS. EPA-45

**5.)** Section 3.14.2.; Sulfometuron Methyl. Qualitative comparisons of rates are made yet only the rate for one product is provided. We recommend the rates for other products be provided. EPA-46

**6.)** Section 3.14.2, Hexazinone: The economics of formulations (granular/foliar) is discussed but it is unclear which product or formulation will be used. Use figures in the tables show only one granular formulated product was applied. We urge inclusion of a detailed Herbicide Use plan with a description of the type of products to be used, how they will be used, and other appropriate handling, storage, and use requirements and guidelines. EPA-47

**7.)** Section 3.14.2.2: All "Pesticides" are regulated by USEPA and California Environmental Protection Agency/Department of Pesticide Regulation (Cal-EPA/DPR). Herbicides are a subset of Pesticides. The term "strictly controlled" should be replaced with "regulated". Although there may be State regulations relating to herbicide uses in forestry applications, Federal regulations do not require the written recommendation of a pest control advisor and only those herbicides classified by US EPA as "restricted use" need to be applied under the supervision of a state-certified applicator. Adjuvants are not regulated by US EPA, although California does have some regulations on these substances. EPA-48

**8.)** Section 3.14.2.2 Water Quality Protection, first paragraph. The sentence "Potential for the herbicide to enter the stream depends on the mode of application" is oversimplified. The mode of application is only one factor affecting the potential for an herbicide to enter an aquatic system. Leachability, rainfall, and other factors will also greatly influence the potential of an herbicide to enter into surface water. EPA-49

**9.)** Section 3.14.2.2 Water Quality Protection, first paragraph. It should be clarified that the "vast majority" of cases refer to measurable concentrations within streams due to pesticide drift from aerial applications only and does not include storm runoff from treated soils, etc. EPA-50

**10.)** Section 3.14.2.2 Water Quality Protection, second paragraph. The description of the management agreement between the California Department of Pesticide Regulation and State and nine Regional Water Quality Control Boards does not clearly state that the Regional Water Quality Control Boards can take any actions allowed under their authorizing legislation at any time they deem it necessary. The management agreement does not change the fundamental authorities of the regulatory agencies; the Department of Pesticide Regulation continues to regulate only pesticide applications, while the Regional Water Quality Control Boards regulate water quality. EPA-51

**11.)** Section 3.14.2.2 Water Quality Protection. The water quality monitoring described in this section appears to focus on groundwater wells rather than in-stream sampling or surface water quality. Only one monitoring episode, performed by the Regional Water Quality Control Board on stormwater near a Aatrex application site, appears to address monitoring of surface water quality. We recommend the final EIS provide additional support and information on surface water quality monitoring for herbicides. EPA-52

**12.)** Page 3.14-4&5: The discussion states that sampling for herbicides did not find measurable concentrations. However, there is no discussion of the herbicide concentrations that were measurable. In addition, sulfometuron methyl and probably imazapyr can have herbicidal effects at concentrations below the level of detectability. We recommend BMP #9 include a list of herbicides and their concentration levels that the company should monitor to verify if BMPs are working. Timing, location, and methods of sampling should also be discussed. EPA-53

**13.)** Section 3.14.2.4: We noted that aerial application of herbicides is neither a current activity nor a proposed activity. Non-aerial application would reduce, but not eliminate, off-site deposition. EPA-54

**14.)** Page 3.14-8: The DEIS states that sampling done in 1997 and 1998 found no detectable residues of herbicides in the sample water. There is insufficient information to determine if the methods and timing of sampling were appropriate for detecting herbicide residues. EPA-55

**15.)** Page 3.14-9: At the top of the page, the statement is made that forest herbicides addressed in this DEIS have not undergone consultation under Section 7 of the Endangered Species Act. This statement is incorrect. EPA-56

- A Section 7 consultation on many forest pesticides (biological opinion dated October 25, 1984) determined that atrazine, glyphosate, and hexazinone jeopardize the continued existence of certain forest plants (any that would be exposed).
- A Section 7 consultation on many rangeland pesticides (biological opinion dated December 11, 1984) determined that atrazine, 2,4-D, and hexazinone jeopardize the continued existence of certain rangeland plants (any that would be exposed).
- In several Section 7 consultations on pesticides used on crops, atrazine and 2,4-D were found to jeopardize the continued existence of certain aquatic animal species.
- A Section 7 consultation on a wide variety of pesticides used for various uses (biological opinion dated June 14, 1989 and revised September 14, 1989) found that atrazine jeopardize a variety of plants and aquatic animal species, and 2,4-D, hexazinone, and glyphosate jeopardize a variety of plants.
- A Section 7 consultation specifically on sulfometuron-methyl (biological opinion dated June 30, 1983) found this herbicide jeopardize a wide variety of plants.

Given the current status of knowledge on the non-selectivity of the above herbicides, the Office of Pesticide Programs, HQ EPA, remains concerned with the potential impact to any exposed plants listed as threatened or endangered.

**16.)** Page 3.14-9: While the Office of Pesticide Programs, HQ EPA, has not yet consulted on the recently listed coho salmon and tidewater goby, we are concerned that atrazine and 2,4-D esters could potentially affect individuals of these species, especially coho salmon if it occurs in streams in the project area. Although the proposed application rates are not particularly high and mitigation measures proposed, the absence of information on sampling methodology/timing and residues detected means we cannot discount potential impacts for these fish. EPA-57

**17.)** Page 3.14-9: EPA and California EPA/ Department of Pesticide Regulation actively consult with the US Fish and Wildlife Service under Section 7 of the Endangered Species Act on pesticide effects. Protection measures (pesticide use limitations) are implemented in California to protect sensitive, threatened, and endangered species from pesticides. Future consultation efforts are likely to include consultation regarding herbicides and recently listed species. More information is available at http://www.cdpr.ca.gov/docs/es/index.htm. EPA-58

**18.)** Section 3.14.4, first paragraph: It is not clear what is meant by the statement "not subject to the current permitting process..." in the last sentence. As written, this statement appears to contradict the first paragraph of section 3.14.2.2. EPA-59

**19.)** Section 3.14.4, fourth paragraph: The HCP appears to have provisions for incidental take of listed species resulting from herbicide use. Therefore, we assume a determination has been made that take is likely to occur during proposed project activities. However, there is no discussion in the Herbicide Section of how take might occur and for which species. We recommend the FEIS include this information in the Herbicide Section or provide references to where this information may be found. Furthermore, the DEIS states that PALCO has applied for incidental take coverage of forestry herbicides it does not currently use. These other pesticides are not identified. The inclusion of these other pesticides implies future use yet no discussion or evaluation of these products is included in the DEIS. The FEIS should provide information and evaluation of all forest herbicides and chemicals (e.g., pesticides, fertilizers) proposed for present and future use. EPA-60

**20.)** Section 3.14.4, sixth paragraph: In contrast to the last sentence in the paragraph there are a number of studies on pesticide/herbicide drift that **do** equate reductions in deposition with increasing setback distances from streams. In particular, US Department of Agriculture has conducted research on drift in forest settings. There are also other studies which have been conducted in non-forest settings. EPA-61

**21.)** Section 3.14.5, second paragraph. The expectation that there will be "minimal" "direct effects" on "other...organisms" from foliar sprays of herbicides has no basis. In fact, this statement is contradicted by the next sentence. Foliar applications typically have a higher likelihood of drift. EPA-62

**22.)** Section 3.14.5 Direct and Indirect Environmental Effects. Discussions of effects, both direct and indirect, should include an evaluation of pesticide degradation products. Recent US Geological Survey, National Water Quality Assessment (NAWQA) studies have shown that degradation products of some pesticides, including atrazine, are found more frequently than the parent compound and often at higher concentrations. EPA-63

**23.)** Section 3.14.5.1, first paragraph: The statement "the toxic activity of an herbicide should be limited to its target species" demonstrates a lack of understanding of ecological effects of pesticides, as well as considerations of efficacy. The DEIS even gives an example of why this is untrue when discussing the potential effects of hexazinone on redwoods, which are certainly not a target species for hexazinone. EPA-64

Target species are those which (1) are considered pests, and (2) those for which a certain level of control (often 80%) can be demonstrated. Non-target species are all other species including numerous plants and animals. Most of the herbicides proposed for use in the DEIS are relatively broad spectrum and could affect exposed non-target flora. Furthermore, while herbicides typically have low acute toxicity in mammals, a number of herbicides are toxic to aquatic non-target species. The absence of a specific biochemical pathway in animals is not sufficient for concluding limited toxicity, especially given the fact that many chemicals may be part of, or interfere with, a variety of biochemical pathways. EPA-64 con.

**24.)** Section 3.14.5.1: Under some forest management situations, herbicides are used to control mammals by removing their sources of food. While intensive, non-selective use of herbicides may not be directly "toxic" to mammals, it can cause significant impacts on mammal populations. This indirect effect on mammal populations (e.g., rodents), may affect other sensitive species such as the northern spotted owl by reducing the number of their prey species. EPA-65

**25.)** Section 3.14.5.1, **Glyphosate**: As pointed out in the opening part of 3.14, the Roundup formulation of glyphosate has a surfactant that results in fish toxicity. As noted the DEIS does not indicate which formulation of glyphosate may be applied. Toxicity data in EPA files show rainbow trout LC50 values as low as 1.3 ppm for formulated products. EPA-66

**26.)** Section 3.14.5.1, **Glyphosate**: Two statements on the toxicity of glyphosate relate to the reference "EPA, 1997b". However, this reference is not listed in the "Literature Cited" chapter. First, the DEIS states there are no apparent adverse effects on reproduction, growth, or survival of deer mice from Roundup application. This research may not incorporate the loss of food for deer mice that might occur in field situations. Second, the DEIS states that survival of aquatic invertebrates in a forest pond did not show any significant effects at applications up to 220 pounds per acre. The application of up to 220 pounds per acre appears high. Neither statement can be adequately evaluated since the EPA, 1997b reference is not adequately cited. EPA-67

**27.)** Section 3.14.5.1, **Atrazine**: Atrazine is commonly found in surface water and ground water where it is used. It is one of the most commonly detected pesticides in water in the nation. Atrazine degrades into more than one metabolite which are also being detected in surface and groundwater. Therefore, the FEIS should fully evaluate and discuss the prevalence of atrizine in aquatic systems and state that atrazine is "readily degraded" in the environment. EPA-68

**28.)** Section 3.14.5.1, **Atrazine**: In contrast to the statement attributed to Eisler, 1989, Eisler did find that atrazine leaches into the soil by rain or irrigation water. In addition, other parts of the EIS note that atrazine has the ability to leach into the soil. EPA-69

**29.)** Section 3.14.5.1, **Atrazine** Second paragraph, second sentence: A general statement on widespread use is combined with a statement on shallow or cracked wells. These statements lead one to believe that the predominant reason for atrazine to leach is shallow or cracked wells. Atrazine has been found in many different types of hydrogeological regimes and can readily migrate into groundwater. Atrazine and its degradation product are the most commonly detected herbicides in the US Geological Survey, National Water Quality Assessment (NAWQA) studies of ground water. EPA-70

**30.)** Section 3.14.5.1: Again, we find a reference to EPA, 1997b, which is not in the cited literature. EPA-71

**31.)** Section 3.14.5.1, **Triclopyr**: The discussion of triclopyr toxicity is unclear because the toxicity data in the DEIS often does not distinguish between Garlon 4 (triclopyr, butoxyethyl ester) and Garlon 3A (triclopyr, triethylammonium salt). Carlon 3A has negligible aquatic toxicity, but Garlon 4 can occur in concentrations of concern for aquatic animal life. Butoxyethyl ester may also be more resistant to degradation. EPA-72

**32.)** Section 3.14.5.1, **Triclopyr**: The effects on tadpoles at 0.6 mg/l are of concern especially since the DEIS notes streamwater concentrations greater than 0.6 mg/l and the widespread reductions in anuran populations. EPA-73

**33.)** Section 3.14.5.1, **Triclopyr**: The last two sentences of this section make an improper extrapolation between concentrations in pond water and streamwater. The glyphosate data "presented above" provides insufficient information on application rates and methods, volume of receiving water, and other conditions to support this conclusion. In addition, the cited studies were done by different researchers at different times and sites. All other things being equal, concentrations in pond water are very likely to be higher than in streamwater, if for no other reason than transport mechanisms in streamwater which would tend to modify chemical concentrations. EPA-74

**34.)** Section 3.14.5.1, **Hexazinone**: Hexazinone is a concern for terrestrial and aquatic plants. EPA-75

**35.)** Section 3.14.5.1, **2,4-D**. The acid form of 2,4-D is of very low aquatic toxicity, however 2,4-D is seldom applied in the acid form. The esters of 2,4-D are considerably more toxic to aquatic life, as well as more persistent, and are much more likely to be EPA-76

used in land management. Thus, it is misleading to analyse 2,4-D only on the basis of the acid form. EPA-76 CON.

**36.)** Section 3.14.7, Cumulative and Long-term Environmental Impacts. The last statement in the second-to-last paragraph states "no cumulative environmental effects are expected from the proposed use of herbicides within the Project Area" contradicts the second sentence of the last paragraph of the same section which states "Given existing uncertainty, the cumulative effects of herbicide use over the length of the permit period may possibly result in significant effects." The FEIS should reconciliate or explain this contradiction and clearly state whether cumulative effects are present and significant. EPA-77

**37.)** Section 3.14.2. Why does atrazine have its own section number when the other herbicides do not?

**38.)** Section 3.14.2.2: Third paragraph, Last sentence: remove "equally". EPA-78

## Air Quality

As discussed in the DEIS, Humboldt County is attainment for all National Ambient Air Quality Standards (NAAQS). The General Conformity Rule (40 CFR part 93) only applies to federal nonattainment and maintenance areas. EPA has reviewed the Air Quality section of the DEIS (Section 3.3) and encourages implementation of the listed mitigation efforts (e.g., dust suppressing, limiting vehicle idling, limiting vehicle speeds on unpaved roads, etc.) which should help reduce emissions from the project.

## General Comments

**1.)** Table S-1 (pg. S-11) is confusing and appears to have errors. For example, there are two horizontal records for reserve areas which have different values for the same alternative. There are other examples of confusing and apparent inconsistent details throughout the DEIS. We recommend a thorough review of the DEIS for typographical and inconsistence errors in the text, tables, and figures. Possible items to check are Table 2.5-3b, pg. 2-32 and Table 2.6-1, pg. 2-55. EPA-79

**2.)** To clearly define the baseline and No Action/No Project alternative, we recommend that maps and figures include the acreage, if applicable, that would not be harvested under this alternative. EPA-80

**3.)** To provide a historical context for the proposed HCP/SYP, we recommend a comparison of the alternatives and their environmental outcomes with historical conditions be included in the FEIS. We note that if the historical condition is defined as the last decade, that this condition may not represent a sustainable ecological system, given the intensive and high level of timber harvesting and land use which has occurred over this decade. EPA-81

**4.)** While the HCP/SYP proposes intensive forest management practices, it does not appear to consider practices which would maximize utilization of the harvested wood which could, potentially, reduce the level of harvest necessary to meet demand and socioeconomic goals. For instance, other timber companies have been able to increase profits and obtain stability by utilizing bark, branches, and other currently discarded harvest by-products, to produce additional wood products (e.g., fiber board, biomass fuel). EPA-82

**5.)** Given the length and complexity of the HCP/SYP and DEIS, we recommend references with page numbers be given whenever information from other parts of the documents are summarized or cited. EPA-83

## REFERENCES

Pacific Watershed Associates. 1997. Sediment source investigation for the lower eel river. Draft Report prepared for the US Environmental Protection Agency. Pacific Watershed Associates, Arcata, California.

**Fax for Bruce Halstead: 707-822-8136**

cc:
Mike Spear, Regional Director, Region 1, US Fish and Wildlife Service (USFWS), Eastside Federal Complex, 911 NE 11th Ave., Portland, OR 97232

Wayne White, Sacramento Field Office, US Fish and Wildlife Service (USFWS), 2800 Cottage Way, Sacramento, CA. 95825

Dennis Mackey, Region 1, US Fish and Wildlife Service (USFWS), Eastside Federal Complex, 911 NE 11th Ave., Portland, OR 97232

Ben Harrison, Region 1, US Fish and Wildlife Service (USFWS), Eastside Federal Complex, 911 NE 11th Ave., Portland, OR 97232

Headwaters Project Director, Office of the Secretary, 2nd Floor, P.O. Box 3623, Portland, OR 97208

David Hays, Department of Interior

Lynne Cox, Solicitors Office, Department of the Interior

Lynn Sprague, Regional Forester, Region 5, US Forest Service (USFS), 630 Sansome St., San Francisco, CA. 94111-2214

Ed Hasty, State Director, California State Office, Bureau of Land Management (BLM), 2800 Cottage Way, Sacramento, CA. 95825

Richard Johnson, California State Office, Bureau of Land Management (BLM), 2800 Cottage Way, Sacramento, CA. 95825

Pat Port, Attn: Heather Dempsey, Office of Environmental Policy & Compliance, 600 Harrison St., suite 515, San Francisco, CA. 94107. Fax # 415-744-4121.

Bill Hogarth, Regional Director, National Marine Fisheries Service (NMFS), 501 West Ocean Blvd., Suite 4200, Long Beach, CA. 90802

Jim Lecky, Deputy Regional Director, National Marine Fisheries Service (NMFS), 501 West Ocean Blvd., Suite 4200, Long Beach, CA. 90802

Vicki Campbell, NMFS, Protected Species Management Division, 777 Sonoma Ave., Rm 325, Santa rosa, CA. 95404

Jim Branham, California Resources Agency, 1416 9th St., Sacramento, CA. 95814

Mark Stopher, Region 1, California Department of Fish and Game (CDFG), 601 Locust, Redding, CA. 96001

Frank Reichmuth, North Coast Region 1, Regional Water Quality Control Board, 5550 Skylane Blvd., Suite A, Santa Rosa, CA. 95403

Richard Wilson, Director, California Department of Forestry and Fire Protection (CDF), P.O. Box 944246, Sacramento, CA. 94244-2460

Allen S. Robertson, California Department of Forestry and Fire Protection (CDF), P.O. Box 944246, Sacramento, CA. 94244-2460. FAX# 916-653-8957.

John Campbell, Pacific Lumber Company

Frank Bacik, Attorney for Pacific Lumber Company, P.O. Box 720, 169 Mason Street, Suite 300, Ukiah, CA. 95482.

Elk River Timber Company

Tom Stewart, Foster Wheeler, 10900 NE 8th Street, Suite 1300, Bellevue, Washington 98004

bc: Maria Rea, WTR-4
Chris Heppe, EPA c/o BLM, 1695 Heidon Dr., Arcata, CA. 95521
Allen Demorest, CMD-4-3
Jan Baxter, CMD-4-3
Larry Turner, HQ EPA, Office of Pesticide Programs
Wendy Melgin, WTR-9

Copies Faxed to Mike Spear, Jim Lecky, and e-mailed to Ben Harrison, Vicki Campbell on 11/16/98.

Hello Mike Spear, Jim Lecky, Ben Harrison, and Vicki Campbell:

In the spirit of our role as a cooperating agency; an advance courtesy copy of our DEIS comments for the Headwaters project is provided below. A copy of the final signed letter with attachments will be mailed to you after we have mailed the official copy to Mr. Bruce Halstead, per directions in the DEIS Federal Register notice.

Our comments and review are pursuant to our responsibilities under Section 309 of the Clean Air Act which requires EPA to review and comment in writing on the environmental impact of any matter relating to the duties and responsibilities granted pursuant to the Clean Air Act or other provisions of the authority of the EPA Administrator, contained in any: (1) legislation proposed by a federal department or agency; (2) newly authorized Federal projects for construction and any major federal action, or actions, other than a project for construction, to which Section 102(2)(C) of the National Environmental Policy Act applies; and (3) proposed regulations published by any department or agency of the Federal Government. Such written comments must be made public at the conclusion of any review.

If you have any questions regarding our comments, please call David J. Farrel, Chief of the Federal Activities Office at (415) 744-1584, or Laura Fujii of his staff at (415) 744-1579. For questions regarding our comments on Pacific Lumber's HCP/SYP or on water quality standards (e.g., Total Maximum Daily Loads (TMDLs)), please call Maria Rea at (415) 744-2005 or Chris Heppe at (707) 825-2311.

Summary Paragraph for HQ OFA

EPA supports the Headwaters Forest Acquisition, the habitat conservation planning process, and sustainable harvest of timber products. We recognize and appreciate the extensive work that has been undertaken by FWS, NMFS, and others, over the last two years in developing the HCP/SYP and EIS. The proposed HCP/SYP will result in definite improvements over existing private forest management and species protection efforts under the California Forest Practice Rules. We are encouraged by these improvements, as we do not believe California's current Forest Practice Rules protect water quality. EPA has participated in development of the HCP because we are developing Total Maximum Daily Loads (TMDLs) under the Clean Water Act concurrently for watersheds with PALCO's ownership. EPA will continue to work with the Federal and State agencies as necessary to reduce the significance of the potential environmental impacts. EPA will continue to ensure that Clean Water Act programs, such as Total Maximum Daily Loads (TMDLs) will be properly implemented regardless of the status of the HCP. These TMDLs will be completed in December 1999. Our review has identified key issues which need to be better addressed to fashion a more environmentally beneficial package. Our key issues primarily focus on improvements we would like to see in the aquatics section of the HCP: cumulative watershed effects analysis process, Mass Wasting Strategy, wider riparian buffer zones consistent with recent State legislation, road storm-proofing program and wet weather road use, herbicide/forest chemical use, implementation, compliance, and monitoring.